

1-320

Work Order ID 151191

September 13, 2016 3:30:57 PM

151191

Page 1

Item ID: D212-725-1-931

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Manifold Tube Ass'y

Start Date: 9/12/2016 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 10/17/2016 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: SU Date: SEP 13 2016

Run Start *NR1*

QC: _____ Date: _____ Tooling: _____ Date: _____

Stop *NR2*

SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

DAS
13
9-89

D4236

pb1 REV. B

110

0.00

110

Purchasing

2

SEP 23 2016

DAS
13
9-89

Purchasing

Memo

0.00

Issue P/O: 33759

E-mail or Ship electronic file and or dwg to vendor

Manufacture as per Dwg and supplied files

Possible supplier: CINTUBE

Material release note is required.

120

Receive & Inspect for Damage & Mat'l Certs

0.00

120

Packaging

Memo

0.00

Packaging

2x SP/6/11-17

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

September 13, 2016 3:30:57 PM

Page 2

0.00

DAS
9
9-80

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Work Order ID 151191***151191***

Page 3

September 13, 2016 3:30:57 PM

Item ID: D212-725-1-931

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Manifold Tube Ass'y

Stop

NS2

Start Date: 9/12/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 10/17/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

NR1

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170	QC5- Inspect part completeness to step on W/O	0.00							
170									
QC	Memo	0.00							
Quality Control									
180	Identify as per dwg & Stock Location: <u>Store A</u>	0.00							
180									
Packaging	Memo	0.00							
Packaging									
190	QC21- Final Inspection - Work Order Release	0.00							
190									
QC	Memo	0.00							
Quality Control									

② 16-11-182 NOV 18 2016DAS 9-30DAS 21 9-30NOV 18 2016DAS 21 9-30NOV 18 2016

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification ☐		☐	Pressure/Forced	☐	Temperature/Cure
Design ☐	☐	Operator ☐		☐	Bending	☐	Set-up
Doc/Data ☐	☐	Offset/Setup ☐		☐	Centre Not Concentric	☐	BOM/Route
Equip/Tooling ☐	☐	Supplier ☐		☐	Cracks	☐	Broken/Damage/Defect
Handling/Pre ☐	☐	Training ☐		☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified
Material ☐	☐	Use for Testing ☐		☐	Cuffs	☐	Contamination
Internal Transport ☐	☐	Poor Information ☐		☐	Crushing	☐	Countersink
Tribal Knowledge ☐	☐	Rushing ☐		☐	Heat Treat	☐	Cut Too Short
LOA ☐	☐	Product Improvement ☐		☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear
Substation ☐	☐	Process Improvement ☐		☐	Marks/Chatter	☐	Drill Holes
Past Expiry Date ☐	☐	Manufacturing Process ☐		OTHER : _____			
Misidentified ☐	☐	Past Due ☐					

Picklist Print

Page 1

Friday, September 23, 2016 1:35:23 PM

Work Order ID: 151191

151191

Parent Item: D212-725-1-931

D212-725-1-931

Parent Item Name: Manifold Tube Ass'Y

Start Date: 9/12/2016

Required Date: 10/17/2016

Start Qty: 1.00

Required Qty: 1.00

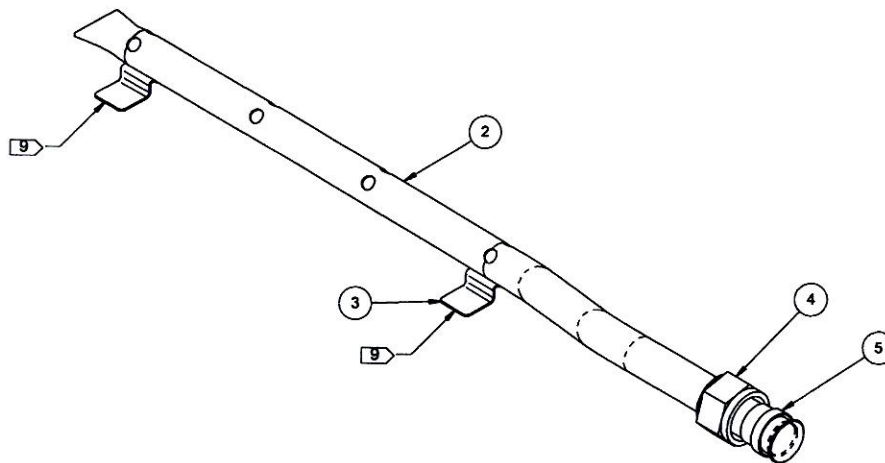
Comments: IPP REV:A 12.06.25 PER REV.A DWG DD VERF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D212-725-1-931P		Purchased	No				Each	0.0000		2			
D212-725-1-931P									**				
Manifold Tube Assembly													
D212-725-1-141		Manufactured	No			150	Each	0.0000	2	2			
D212-725-1-141									**				
Bracket													

2x 80/611-17.

DAS
9
9-89

ITEM	QTY -931	PART NUMBER	DESCRIPTION
1	X	D212-725-1-931	MANIFOLD TUBE ASSEMBLY
2	1	D212-725-1-139	MANIFOLD TUBING
3	2	D212-725-1-141	BRACKET
4	1	AN818-16J	NUT
5	1	MS20819-16J	SLEEVE



D212-725-1-931 MANIFOLD TUBE ASS'Y

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 1.79 lbs
- 8) WELD PER DART QSI 004
- 9) TRIM AS REQUIRED TO SUIT AIRCRAFT MOUNTING HOLE, MAINTAIN MINIMUM EDGE DISTANCE

SEP 13 2016

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 157191

RELEASED
2013-03-21
MP

B	REVISE DIMENSIONS TO D212-725-1-139 (ZN A4-2) & D212-725-1-931 (ZN A4-3), REVISE D212-725-1-141/-141F (ZN B4-4, B4-5)	RF	12.11.15
A	NEW ISSUE	RF	11.02.24
REV.	DESCRIPTION	BY	DATE
DESIGN	RF		
DRAWN	RF		
CHECKED	RF		
MFG. APPR.	RF		
APPROVED	RF		
DE APPR.	RF		
DATE	12.11.15		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. **D4236** REV. B
SHEET 1 OF 6
TITLE **TUBE ASSEMBLY** SCALE NTS

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DQA: _____ Date: _____

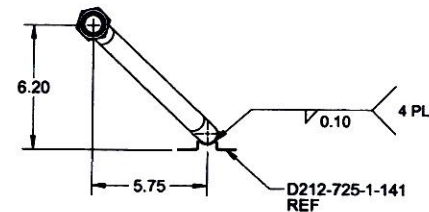
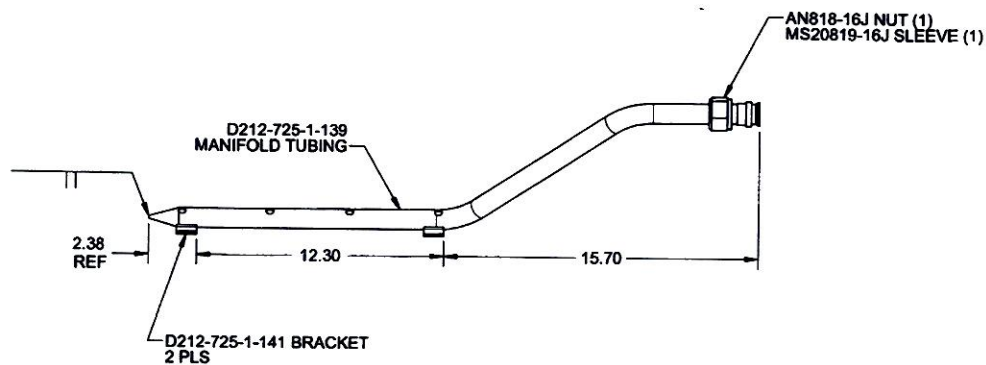


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								



D212-725-1-931 MANIFOLD TUBE ASS'Y



RELEASED
2013-03-21
MP

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO. D4236	REV. B
MFG. APPR.	<i>[Signature]</i>	SHEET 2 OF 6	
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	TUBE ASSEMBLY	NTS
DATE	12.11.15	COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

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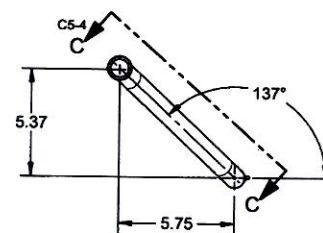
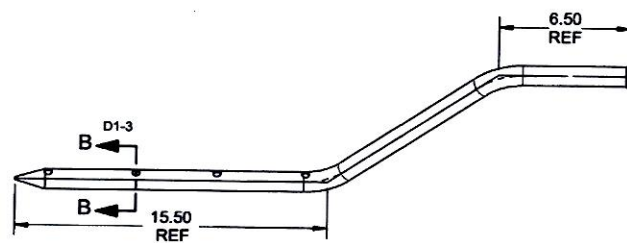
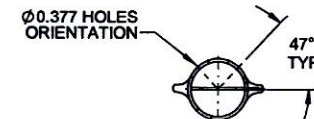
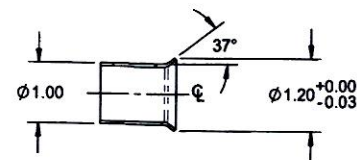
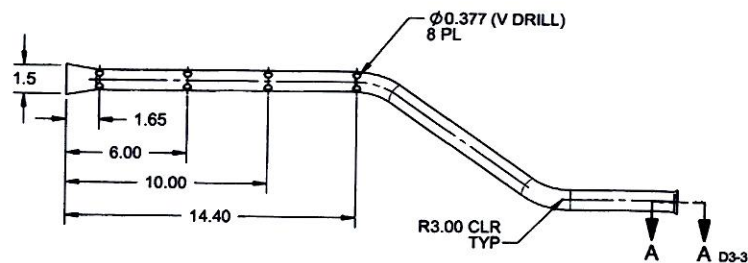


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					



D212-725-1-139 MANIFOLD TUBING
(MANUFACTURE PER TEMPLATE DT8914)



NOTES:

- 1) MATERIAL: AISI 304/316 SEAMLESS STAINLESS STEEL, 1.00 O.D. x 0.049 WALL
PER ASTM A213 OR ASME SA213 OR ASTM A269
REF DART SPEC. M304TR1.000W.049
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 1.39 lbs

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DATE	12.11.15	SHEET 3 OF 6
		SCALE
		NTS

RELEASE
2013-03-21
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DQA: _____ Date: _____

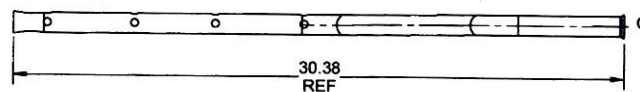
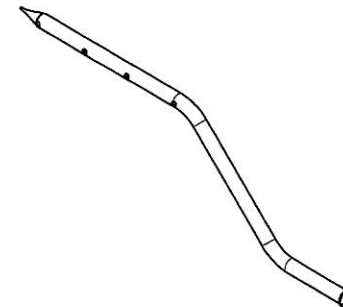
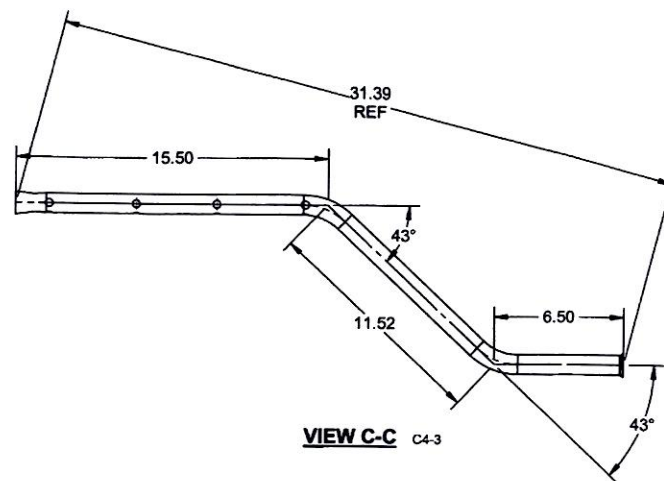


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		OTHER : ☐					



D212-725-1-139 MANIFOLD TUBING
AUXILIARY VIEW



RELEASED
2013-03-21
MP

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D4236	SHEET 4 OF 6
APPROVED	<i>[Signature]</i>	TITLE	SCALE
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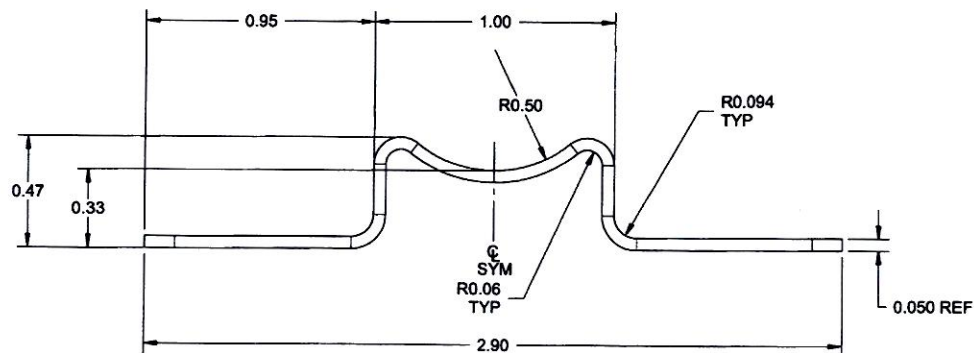


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								



A triangle with the letter **B** inside it.

RELEASE
2013-03-21

1) MATERIAL: MAKE FROM D212-725-1-141F FLAT PATTERN
2) FINISH: NONE
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: N/A
7) WEIGHT: 0.05 lbs

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>RF</i>	DRAWING NO.	REV. E
MFG. APPR.	<i>RF</i>	D4236	SHEET 5 OF 5
APPROVED	<i>RF</i>	TITLE	SCALE
DE APPR.	<i>RF</i>	TUBE ASSEMBLY	NTS
DATE	12.11.15	COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT THE WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DQA: _____ Date: _____

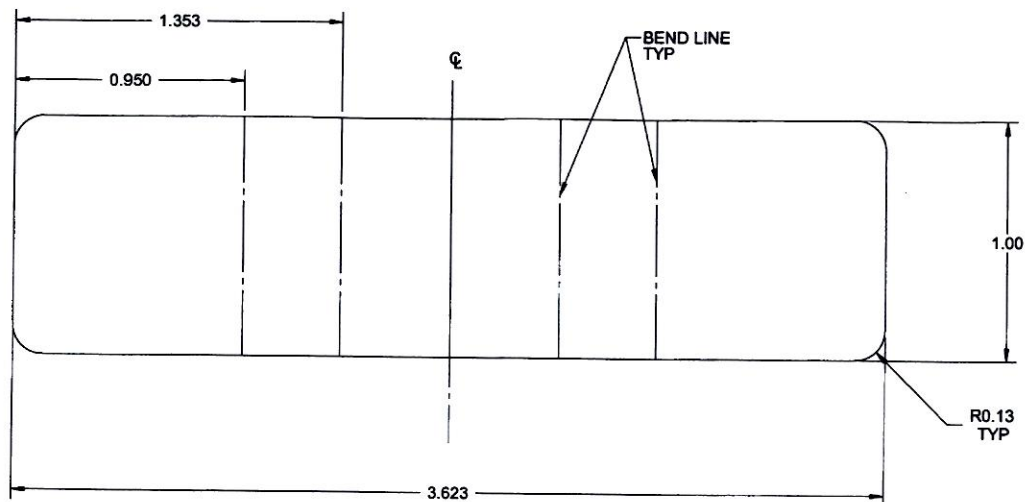


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								



D212-725-1-141F FLAT PATTERN



NOTES:

- 1) MATERIAL: AISI 304/316 STAINLESS STEEL SHEET, 0.050 (18 GAUGE) THICK
PER MIL-S-5059
OR AMS-5513 (304)
OR AMS 5524 (316)
OR ASTM A240
OR ASME SA240
REF DART SPEC. M304S18GA
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.05 lbs

RELEASED
2013-03-21
ANN

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	RF	DRAWING NO. D4236	REV. B
MFG. APPR.	RF	SHEET 6 OF 6	
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	TUBE ASSEMBLY	NTS
DATE	12.11.15	COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO33759

Purchase Order Date 9/23/2016
PO Print Date 9/23/2016

Page Number 1 of 3

Order From :

VC-ATB001

AGGRESSIVE TUBE BENDING
9750 - 188TH STREET
SURREY, B.C. V4N 3M2
CANADA

Ship To : DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

E-MAILED

SEP 23 2016

Contact Name

Vendor Phone

604-882-4872

Ship To Contact

Ship To Phone

Ship Via:

FedEx Overnight collect

Ship Acct:

Buyer

Customer POID

Customer Tax #

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 30

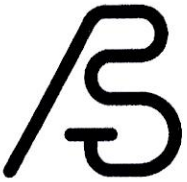
CAD

Destination-Collect

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
1	D212-725-1-931P	Manifold Tube Assembly	10/24/2016 Yes 10/24/2016		2.00 Each	\$825.00	\$1,650.00
MANUFACTURE AS PER DWG D212-725-1-931 REV. B B151191 MAKE FROM MATERIAL 304/316 ROUND TUBING 1" X .049"							
Line Total:							\$1,650.00
2	D212-725-1-933P	Tube Assembly	10/24/2016 Yes 10/24/2016		1.00 Each	\$600.00	\$600.00
MANUFACTURE AS PER DWG D212-725-1-933 REV. D B151198 MAKE FROM MATERIAL 5052-0 ROUND TUBING 0.250" X .035"							
Line Total:							\$600.00

Note:

9/23/2016

**AGGRESSIVE TUBE BENDING INC.**

9750 188th Street
Surrey, BC V4N 3M2
Phone: 1-604-882-4872
Fax: 1-604-882-4873

PACKLIST

Packlist ID: 29181
Date: 2016-11-14
Page: 1 of 1

Shipped By: TERRY

Sold To Address	Ship To Address
DART AEROSPACE LTD 1270 ABERDEEN STREET HAWKESBURY, ON K6A 1K7 CANADA	DART AEROSPACE LTD 1270 ABERDEEN STREET HAWKESBURY, ON K6A 1K7 CANADA

CUSTOMER ID			CUSTOMER PO		PAYMENT TERMS		F.O.B.	
2883			PO33759		Net 30			
SALES REP ID			SHIPPING METHOD			SHIP DATE	OUR ORDER NUMBE	
YT			FEDEX 1-800-463-3339			NOV 15/16	16-1229	
QUANTITY			CUSTOMER					
ORD	SHF	BCK	PART ID	DESCRIPTION		PART NO.	DRAWING #	

2 2 0

SUP/FAB 1 X .049 316 SS ✓

D212-725-1-931

1 1 0

SUP/FAB 1/4 X .035 6061 T4

D212-725-1-933

1 1 0

SUP/FAB 3/4 X .035 6061 T4

D212-725-1-941

1 1 0

SUP/FAB 3/4 X .035 6061 T4

D212-725-1-943

2 2 0

SUP/FAB 3/4 X .035 6061 T4

D212-725-1-945

ORDER SPECIFICATIONS

SHIP OVERNIGHT

8/16-11-17

RECEIVED BY: _____

QA REQUIREMENTS: Mill Test Reports

CERTIFICATE OF CONFORMANCE

PYROTEK AEROSPACE LTD.

CUSTOMER P.O. # 16-1229

CERT: 97592

101 - 2285 Queen Street, Abbotsford, B.C. V2T 6J3

TEL: (604) 859-4484 FAX: (604) 859-4481

PYROTEK W.O. #: 97521

W.O. Date: 10/26/2016

CERT DATE: November, 01 2016

CUSTOMER: **Aggressive Tube Bending Inc.**

9750 - 188th Street, Surrey, BC V4N 3M2

MATERIAL: 6061-T6

ALUMINUM TUBE

0.035" - 0.035" BARE

PROCESS DESCRIPTION: *Solution Heat Treat to "W" Condition / Natural Age to 6061-T42 Temper*

QUANTITY	PART NUMBER	PARTS DESCRIPTION	REFERENCE
2 ea.	N/A	SEAMLESS TUBE	N/A
4 ea.	N/A	SEAMLESS TUBE	

BATCH #	PROCESS	TIME	TEMPERATURE	FURNACE	SPECIFICATIONS
39487	Solution Heat Treat	0:36 Minutes	985 deg. F.	6	AMS 2770 Rev N
	Quench	7 Second	71/73 deg. F.		
	Natural Age		Ambient		

Glycol Quench 22 % max

Air Cool Ambient

* Parts exceeded Minimum Temper Requirements prior to 96 hr. period

TEMPER VERIFICATION REPORT

SPECIFICATION: AMS 2658 "D"

HARDNESS: 64.3 - 64.6 HR15TW (1/4")

HARDNESS: 67.6 - 68.2 HR15TW (3/4")

PYROTEK Certifies that the items listed hereon have been HEAT TREATED IN ACCORDANCE with the above LISTED SPECIFICATION, have been inspected and tested and conform to all Contract or Purchase Order requirements. TEMPER IS CERTIFIED for the Items in their Present State of Condition. Documentation is on file.

ELECTRICAL CONDUCTIVITY:

N/A % IACS (1/4")

N/A % IACS (3/4")



No E.C. per AMS 2770 L para. 4.4.1.2

QTY. ACCEPT

2+4

QTY. REJECT

0


MANAGER, QUALITY ASSURANCE

November 01, 2016

DATE



PACKING LIST



DELIVERY NUMBER: 8003777557

ROUTE: Generic route DON'T USE WITH PLANT

PAGE:1 of 1
DATE:07NOV16
TIME:13:26:12
EMP:00011968

ORD TYP: ZOR 133

CURRENCY:CAD

TERMS:Pay immediately w/o

CUSTOMER PO:16-1229
ORDER NUMBER:1002569947
ORDER DATE:21OCT16B 10016782
I COD SALES VANCOUVER/BOTH TAX
L 1 - 13511 CRESTWOOD PLACE
L RICHMOND BC V6V 2E9
T CANADA
OS 10016782
H AGGRESSIVE TUBE BENDING
I 604-882-4872
P 9750 - 188 STREET
SURREY BC V4N 3M2
T CANADA
OS 1502
H AVIALL VANCOUVER CSC
I VANCOUVER SALES OFFICE
P UNIT 1-13511 CRESTWOOD PLACE
RICHMOND BC V6V 2E9
F CANADA
R
O
M

LINE	PO LINE	MFG	ITEM DESCRIPTION	ORDER QUANTITY	SHIP QUANTITY	QUANTITY BACK ORDER	UOM		CUSTOMER PRICE	EXTENDED CUSTOMER PRICE
00010	0	8M	5052-0-4 TUBE: AL,1/4INX6FT	12	12	0	FT			
			BATCH 7364313004		12					

2@ 1/4" X .035 WW-T-700 6' LONG
16-1229
DART AEROSPACE
NOV 7/16
TERRY

This is not an Invoice.
For payment processing, please refer to Invoice.

CERTIFICATE OF CONFORMANCE / CERTIFICAT DE CONFORMITE

I hereby certify that the aircraft parts appliances and/or aircraft materials described hereon were acquired from a source of supply that is consistent with the conditions under which the department of transport distributor approval number 35-86 has been granted. Je certifie par la par la presente que les pieces appareils et/ou materiaux d'avions decrits ci-dessus ont ete acquis d'une source d'approvisionnement consistante avec les conditions sous lesquelles l'approbation du distruteur du departement du transport no. 35-86 ont ete recue.

Rick Rantz, DSM

07NOV16
Date

DISCOUNT TERMS APPLY ONLY TO SUB TOTAL
ESCOMPTE APPLIQUES SUR SOUS TOTAL SEULEMENT.
ALL RETURNED MERCHANDISE SUBJECT TO A
HANDLING FEE. FRAIS DE MANUTENTION APPLIQUES
SUR TOUTE MARCHANDISE RETOURNEE.

CUSTOMER COPY



PACKING LIST



DELIVERY NUMBER: 8003760751

ROUTE: Generic route DON'T USE WITH PLANT

PAGE:1 of 1

DATE:02NOV16

TIME:13:28:19

EMP:00020887

ORD TYP: ZOR 133

CURRENCY:CAD

TERMS:Pay immediately w/o

CUSTOMER PO:16-1229
ORDER NUMBER:1002569947
ORDER DATE:21OCT16

B 10016782
I COD SALES VANCOUVER/BOTH TAX
L 1 - 13511 CRESTWOOD PLACE
L RICHMOND BC V6V 2E9
T CANADA
O

S 10016782
H AGGRESSIVE TUBE BENDING
I 604-882-4872
P 9750 - 188 STREET
T SURREY BC V4N 3M2
O CANADA

S 1502
H AVIALL VANCOUVER CSC
I VANCOUVER SALES OFFICE
P UNIT 1-13511 CRESTWOOD PLACE
F RICHMOND BC V6V 2E9
R CANADA
O

LINE	PO LINE	MFG	ITEM DESCRIPTION	ORDER QUANTITY	SHIP QUANTITY	QUANTITY BACK ORDER	UOM		CUSTOMER PRICE	EXTENDED CUSTOMER PRICE
00010	0	74	AN818-16J NUT: COUPLING,SS <i>2 PCS</i>	2	<i>2</i>		0 EA			
			BATCH 7364391121		<i>2</i>					
00020	0	74	MS20819-16J SLEEVE: FLARED TUBE,CRES <i>2 PCS</i>	2	<i>2</i>		0 EA			
			BATCH 7364391128		<i>2</i>					

16-1229
DART AEROSPACE
NOV 3/16
TERRY

This is not an Invoice.
For payment processing, please refer to Invoice.

CERTIFICATE OF CONFORMANCE / CERTIFICAT DE CONFORMITE

I hereby certify that the aircraft parts appliances and/or aircraft materials described hereon were acquired from a source of supply that is consistent with the conditions under which the department of transport distributor approval number 35-86 has been granted. Je certifie par la par la presente que les pieces appareils et/ou materiaux d'avions decrits ci-dessus ont ete acquis d'une source d approvisionnement consistante avec les conditions sous lesquelles l'approbation du distruteur du departement du transport no. 35-86 ont ete recue.

AV20 RS-06

Rick Rantz, DSM

02NOV16
Date

DISCOUNT TERMS APPLY ONLY TO SUB TOTAL
ESCOMPTE APPLIQUES SUR SOUS TOTAL SEULEMENT.
ALL RETURNED MERCHANDISE SUBJECT TO A
HANDLING FEE. FRAIS DE MANUTENTION APPLIQUES
SUR TOUTE MARCHANDISE RETOURNEE.

CUSTOMER COPY



PACKING LIST



DELIVERY NUMBER: 8003760750

ROUTE: Generic route DON'T USE WITH PLANT

PAGE:1 of 1

DATE:02NOV16

TIME:13:30:25

EMP:00020887

ORD TYP: ZOR 133

CURRENCY:CAD

TERMS:Pay immediately w/o

CUSTOMER PO:16-1229
ORDER NUMBER:1002569947
ORDER DATE:21OCT16

B 10016782
I COD SALES VANCOUVER/BOTH TAX
L 1 - 13511 CRESTWOOD PLACE
L RICHMOND BC V6V 2E9
CANADA

S 10016782
H AGGRESSIVE TUBE BENDING
I 604-882-4872
P 9750 - 188 STREET
SURREY BC V4N 3M2
CANADA

S 1502
H AVIALL VANCOUVER CSC
I VANCOUVER SALES OFFICE
P UNIT 1-13511 CRESTWOOD PLACE
RICHMOND BC V6V 2E9
CANADA
FROM

LINE	PO LINE	MFG	ITEM DESCRIPTION	ORDER QUANTITY	SHIP QUANTITY	QUANTITY BACK ORDER	UOM	CUSTOMER PRICE	EXTENDED CUSTOMER PRICE
00010	0	28	AN818-12D NUT: COUPLING,AL 6 PCS	6	6	-1 -2 -2	0 EA		
			BATCH 7364236911		1				
			BATCH 7364307345		5				
00020	0	28	AN818-4D NUT: COUPLING,AL 5 PCS ✓	5	5	-1	0 EA		
			BATCH 7364315360		5				
00030	0	28	MS20819-12D SLEEVE: FLARED TUBE,AL 10 PCS ✓	10	10	-1 -2	0 EA		
			BATCH 7364267964		10				
00040	0	28	MS20819-4D SLEEVE: FLARED TUBE,AL 10 PCS	5	5	-1	0 EA		
			BATCH 7364087462 5 PCS		5				

This is not an Invoice.
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AV20 RS-06

Rick Rantz, DSM

02NOV16
Date

DISCOUNT TERMS APPLY ONLY TO SUB TOTAL
ESCOMPTE APPLIQUES SUR SOUS TOTAL SEULEMENT.
ALL RETURNED MERCHANDISE SUBJECT TO A
HANDLING FEE. FRAIS DE MANUTENTION APPLIQUES
SUR TOUTE MARCHANDISE RETOURNEE.

CUSTOMER COPY



允強實業股份有限公司
YC INOX CO., LTD.

檢驗證明書
INSPECTION CERTIFICATE

524彰化縣溪州鄉中山路四段270號
No.270, Sec.4, Jungshan Rd., Shijou Shiang,
Chang-Hwa, Taiwan, R.O.C.
http://www.ycinox.com
TEL : +886-4-8899666 FAX : +886-4-8899770



客戶名稱 Customer	SAMUEL, SON&CO. LIMITED	客戶編號 Customer No.	FCA021	證明書編號 Certificate No.	160512C0059
產品名稱 Production	PRIME COLD ROLLED STAINLESS STEEL SHEET	商業發票號碼 Commercial Invoice No.	J16050033	證明書日期 Date of Issue	2016/05/11
規範名稱 Specification	ASTM A240M-15b/A480M-16	客戶採購案號 PO No.	V75284	訂單編號 Order No.	EC16030150-3
鋼種 Steel Grade	304/304L	提貨單編號 Weight No.	C16050226	P.I.號碼 P.I.NO.	A10503096

項目 Item No.	爐號 Heat No.	產品規格 Product Description					化學成份(%) Chemical Composition										拉伸試驗 Tension Test			*01 硬度 HRC	*02 熱處理 T.W.Q.	箱號 C/No.	Coil No
		尺寸 Dimension	數量 Quantity Pcs	重量 Weight kgs	表面 Finish	保護 Protect	C	Si	Mn	P	S	Ni	Cr	N	降伏 0.2%Y.S.	抗拉 T.S.	伸長率 E.L.						
							X10 ⁻³	X10 ⁻²	X10 ⁻²	X10 ⁻³	X10 ⁻³	X10 ⁻²	X10 ⁻²	X10 ⁻³	MPa	MPa	%						
Specification							Min.																
						Max.	30	75	200	45	30	1200	1950	100	205	515	40	92	1040				
1	C34AT1600290	0.024" x48.0" x120.0"	75	1,313	2B	PI	23	52	102	32	2	812	1829	65	288	644	54	70	1050	B2		PG867	
2	C34AT1600290	0.024" x48.0" x120.0"	75	1,312	2B	PI	23	52	102	32	2	812	1829	65	288	644	54	70	1050	B3		P6867	
3	C34AT1600290	0.024" x48.0" x120.0"	74	1,292	2B	PI	23	52	102	32	2	812	1829	65	288	644	54	70	1050	B4		P6867	
4	C34AW1504514	0.047" x48.0" x96.0"	54	1,490	2B	PI	20	45	138	28	1	804	1802	74	285	677	63	87	1050	B8		4U659403	
5	C34AW1504514	0.047" x48.0" x96.0"	53	1,458	2B	PI	20	45	138	28	1	804	1802	74	285	677	63	87	1050	B9		4U659403	
6	C34AW1504514	0.047" x48.0" x96.0"	53	1,464	2B	PI	20	45	138	28	1	804	1802	74	285	677	63	87	1050	B10		4U659403	
7	C34AW1504514	0.047" x48.0" x96.0"	53	1,463	2B	PI	20	45	138	28	1	804	1802	74	285	677	63	87	1050	B11		4U659403	
8	C34AW1504514	0.047" x48.0" x96.0"	53	1,467	2B	PI	20	45	138	28	1	804	1802	74	285	677	63	87	1050	B12		4U659403	
9	C34AW1600953	0.047" x48.0" x120.0"	48	1,674	2B	PI	19	44	155	29	2	800	1830	50	301	675	52	87	1050	B13		9F690Y09	
10	C34AW1600953	0.047" x48.0" x120.0"	48	1,670	2B	PI	19	44	155	29	2	800	1830	50	301	675	52	87	1050	B14		9F690Y09	
11	C34AW1600953	0.047" x48.0" x120.0"	48	1,672	2B	PI	19	44	155	29	2	800	1830	50	301	675	52	87	1050	B15		9F690Y09	
12	C34AW1600953	0.047" x48.0" x120.0"	48	1,672	2B	PI	19	44	155	29	2	800	1830	50	301	675	52	87	1050	B16		9F690Y09	
13	C34AW1600953	0.047" x48.0" x120.0"	48	1,672	2B	PI	19	44	155	29	2	800	1830	50	301	675	52	87	1050	B17		9F690Y09	
14	C34AW1600953	0.047" x48.0" x120.0"	48	1,670	2B	PI	19	44	155	29	2	800	1830	50	301	675	52	87	1050	B18		9F690Y09	
15	C34AW1600953	0.047" x48.0" x120.0"	47	1,635	2B	PI	19	44	155	29	2	800	1830	50	301	675	52	87	1050	B19		9F690Y09	
16	C34AW1600953	0.047" x48.0" x120.0"	47	1,636	2B	PI	19	44	155	29	2	800	1830	50	301	675	52	87	1050	B20		9F690Y09	
17	C34AW1600953	0.047" x48.0" x120.0"	47	1,640	2B	PI	19	44	155	29	2	800	1830	50	301	675	52	87	1050	B21		9F690Y09	
18	C34AW1601251	0.06" x48.0" x96.0"	44	1,510	2B	PI	22	40	141	30	1	804	1821	80	304	645	56	85	1050	B22		4X765403	
19	C34AW1601251	0.06" x48.0" x96.0"	43	1,475	2B	PI	22	40	141	30	1	804	1821	80	304	645	56	85	1050	B23		4X765403	
TOTAL:			1,006	29,185																			

附註 Remark

ASME SA240/SA480

P209680-
P209688-693
P209702-704

Intergranular Corrosion Test (according to ASTM A262 Practice E) : OK
Intergranular Corrosion Test (according to EN ISO 3651-2 Method A) : OK
Intergranular Corrosion Test (according to ASTM A262 Practice A) : OK

註解 Note

*01= Hardness Test
*02= Heat Treatment
*Gauge Length: 50mm

Visual Inspection(Surface) and Dimension Check : OK

1MPa=1N/mm²=10bar=145psi=
10.2kgf/cm²

Surveyor By

茲證明本文所列產品，均依材料標準製造及試驗，並符合標準之要求，與無輻射污染

We hereby certify that material described herein has been manufactured and tested with satisfactory results in accordance with the requirement of the above material specification. The material described above has been found with free of radiation by raw material supplier.

1.ISO 9001:2008 (No.01 100 056299)
2.PED / AD2000 (No.01 202 TWN/Q-05 0105)
3.ISO 14001:2004 (No.01 104 822 096385)
4.OHSAS 18001:2007 (No.01 113 822 096385)

Manager of Quality Assurance Department

How Yu Shih



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INDUSTRIAL PARK,XIAOZHI,QINGTIAN,323900,ZHEJIANG,CHINA
TEL:8651267901092 FAX:8651267901095

MILL TEST CERTIFICATES to EN 10204/3.1 PED 97/23 EC

PED Certificate no.:331/2007/MUC

Customer : UNIFIED ALLOYS
Contract NO. : T15YKZ0807-01
Specification : ASTM A213-14/ASME SA213-15/ASTM A269-14
Steel Grade : TP316/316L
Goods : STAINLESS STEEL SEAMLESS TUBE
PO No. : VP-121862
Cert No. : ST151017-57
Delivery Condition : Solution Treated
Appearance : Pickling

Heat No.		Chemical Composition (%)									
		C	Si	Mn	P	S	Cr	Ni	Mo	Ti	
Spec.	Min.						16.00	10.00	2.00		
	Max.	0.035	1.00	2.00	0.045	0.030	18.00	14.00	3.00		
Ladle Analysis		0.021	0.27	0.97	0.032	0.004	16.57	10.03	2.04		
Product Analysis		0.014	0.43	1.05	0.039	0.004	16.19	10.17	2.01		
Batch No.		Size		Quantity						Visual Examination	
4T150923-33		12.7*1.24*6096		100 PCS		226 KGS		609.6 M		OK	
		1/2**0.049*20FT						2000 FT			
4T150923-35		25.4*0.89*6096		9 PCS		31 KGS		54.864 M		OK	
		1**0.035*20FT						180 FT			
4T150831-02		25.4*1.24*6096		25 PCS		121 KGS		152.4 M		OK	
		1**0.049*20FT						500 FT			
Test No.		Mechanical Properties (Acc to ASTM A370)									
		Tensile Strength MPa	Proof Strength MPa Rp0.2	Elongation A(%)	Flattening Test	Ring Tensile Test	Drift Expanding Test	Ring Expanding Test	Impact Test	Hardness Test HRB	
Spec.	Min. Max.	515	205	35						90	
L82		580/585	254/256	53/54	GOOD	/	GOOD	/	/	71/73	
L83		595	263	59	GOOD	/	GOOD	/	/	71/76	
L84		575	236	59	GOOD	/	GOOD	/	/	74/78	
Leak Tightness Test		Non-destructive Testing		Intergranular Corrosion Test							
Hydrostatic Test Acc to ASTM A1016		Eddy Current Test Acc to ASTM E426		Ultrasonic Test Acc to ASTM E213		Acc to ASTM A262-E					
/		GOOD		/		/					
/		GOOD		/		/					
/		GOOD		/		/					
Additional Remarks:											
1.Country of Origin: China				2.No weld repair				4.100% PMI			
3.Hardness Acc. to NACE MR0103/MR0175/ISO 15156				5.Solution Temperature :1050°C. Hold 30minutes.Rapid Water Cooling.							
We hereby certify that the material described above has been tested and complies with the terms of the Contract & the specification, and we confirm that P.M.I has been done.											
Dec/19/2015						Date					
						Quality Technology Director					